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pure dominants, and the other half dominants in whom the recessive character is latent; but both sorts will be alike (normal) in appearance, as actually observed.

The third son appears to have married each time a woman in whom the albinic character was recessive. The probability of such unions is indicated by Mr. Farabee's observations of *other albinos 'in the vicinity.'* For to every albino produced, where crossing with normal individuals takes place, there are certain to be produced *at least twice as many* 'normal' individuals containing the recessive character. If, as supposed, the third son and each of his wives contained the recessive character, we should expect one in four of their offspring to be an albino; the recorded observation is four in fifteen, a close approximation to the calculated result.

W. E. CASTLE.

ZOOLOGICAL LABORATORY, HARVARD UNIVERSITY,
December 16, 1902.

MAGAZINE SCIENCE.

TO THE EDITOR OF SCIENCE: The following letter from Mr. C. E. Borchgrevink, in regard to the criticisms published by me in SCIENCE of September 13 on the captions of the illustrations of his article on the eruptions of Mt. Pelée which appeared in *Leslie's Monthly* for July, has just been received. In justice to the author, I trust that you will publish this extract from his letter in your columns.

"From a correspondent I hear that you have made an attack on me based upon the article published in *Leslie's Monthly*. I am not responsible for those statements or for those errors in regard to photographs, which never met my eye before they appeared in *Leslie's Monthly*. Very few of those photographs came from my hand and I never of course claimed them." E. O. HOVEY.

SHORTER ARTICLES.

AGGREGATE ATAVIC MUTATION OF THE TOMATO.

ON former occasions I have described two remarkable cases of aggregate phylogenetic mutation of the tomato which occurred suddenly under my personal observation, in which publications * I used the term mutation in

* SCIENCE, November 29, 1901. *Bull. Torrey Bot. Club.*, August, 1902.

the special sense that has been adopted by Professor De Vries. The following remarks refer to reports that have reached me from correspondents concerning equally sudden and complete atavistic reversion of similar plants and their fruit, for which process I here use the term mutation in its ordinary sense. While the main fact of atavistic mutation is clearly stated in these personal reports, they are wanting in certain details necessary to a fuller study of the subject. They are, however, important as aids in an interesting line of inquiry.

In May, 1902, I received from Mr. H. J. Browne, of Washington, D. C., who was then in Havana, Cuba, on business, a package containing a cluster of small spherical tomatoes of the variety known as the Cherry tomato. An accompanying note informed me that they were obtained from the proprietor of a plantation a few miles from Havana who had grown them there, and who assured Mr. Browne that they were the immediate product of seed of the large and fine variety well known throughout our country as the Trophy. These Trophy seed were obtained from the United States and planted in Cuba. The resulting crop of fruit was excellent and perfectly true to that variety as regards size, color, consistence and edible quality; but the seed of those Cuban-grown Trophy tomatoes invariably produced there the small cherry variety. The planter further stated that essentially the same result occurred in the case of all the several other improved varieties of tomatoes, the seed of which he had also procured from the United States, and that the degeneration was in all cases complete, heritably permanent and of uniform character; and that the change equally affected the whole crop. Because of this constantly occurring and hereditary atavism the planter was obliged to procure fresh seed from the United States for every acceptable crop of tomatoes grown on his Cuban plantation.

Quite independently of the foregoing statement I lately received a similar one from Miss Mary E. Starr, of Morristown, N. J. Her observations were made upon her father's plantation on the Bayou Tèche, St. Martin's

Parish, Louisiana. The father there planted the seed of a choice variety of tomatoes which were obtained from the former family home in New York state, the first crop of fruit from which was perfectly true to seed. He was, however, then informed by a neighbor who had lived in that region many years that, to produce good fruit, seed must be obtained from the North for every year's planting, because all the seed of tomatoes grown in that southern region would produce the small, spherical, inferior fruit, from whatsoever improved variety the seed may have originally come. The neighbor's advice was taken, northern seed was annually procured for future crops, and the first crop of resulting fruit was in all cases as characteristic of its variety as if the plants had grown in their native northern soil. But the truth of the reputed atavic mutation was afterward repeatedly demonstrated on the Bayou Tèche plantation under Miss Starr's observation by growing and maturing plants from seed of fruit which was grown there from northern seed. The permanence of the atavic mutation was also demonstrated by hereditary constancy in successive generations; and its completeness was shown in every plant of the second southern crop from northern seed, as well as in all subsequent crops.

These two cases are stated so clearly by my correspondents, and agree with each other so closely as to the main facts, that one cannot doubt their genuineness. One also cannot doubt that many other similar cases are constantly occurring in various regions, the details of which are not publicly reported. This article is written in hope of eliciting such information of similar cases as shall materially aid further investigations. Reports of such cases should embrace detailed statements concerning attendant horticultural and local climatic and other conditions, and mention of the several varieties whose mutations are observed. The interest attending a consideration of the varieties involved in mutations may be illustrated by the cases of phylogenetic mutation before referred to. In those cases the mutative act was accompanied by the production of one specific form from

another, and it is desirable to know if, in cases of atavic mutation like those just mentioned, the reversion may be direct from a specific form that has thus arisen. For example, in those phylogenetic cases the mutation was from *Lycopersicum esculentum* to *L. solanopsis*, and the discovery of a case of atavic mutation involving a retrograde change from the latter species to the former without retracing the varietal steps of the genetic line would, therefore, be of interest in connection with the theory that such mutations originate in molecular changes. In the case reported by Mr. Browne mutation was only varietal or intraspecific in its scope. That is, it was within the species *L. esculentum* because both the Trophy and Cherry varieties belong to that species, and I do not now know whether such atavic mutation as occurred in the cases here mentioned has ever been interspecific in scope, that is, from one species to another.

Cases of atavic reversion of fine varieties of tomatoes are well known to gardeners, but those are generally cases of varietal degeneration complicated by hybridization. In the cases reported by Mr. Browne and Miss Starr, respectively, mutation seems to have been sudden, complete and aggregate for the whole crop. It is, therefore, improbable that it was a result of hybridization in either case. If those northern seeds had been sown in their native soil one cannot doubt that their progeny would have been true to seed in successive generations. Therefore, one also cannot doubt that the exciting cause of those atavic mutations was local for the regions in which they respectively occurred. In those cases of phylogenetic mutation which have been referred to, the initial step evidently occurred in the seed of the fruit of the Acme variety which I had myself grown from authentic Acme seed. So also in the cases of atavic mutation herein mentioned the initial step seems certainly to have occurred, not in the somatic cells of either root, stem, leaves or pericarp of the first crop of plants grown in southern soil from northern seed, but only in the germ cells of those plants. In subsequent generations, however, mutation extended to the pericarp, that is, to the fruit; but the

reports which I have received do not state whether any correlated change occurred in the foliage, stems or other feature of the plant's habit. It is, therefore, plain that one cannot satisfactorily discuss the nature of those cases of atavic mutation until more complete data are obtained. Still, one seems to be justified in assuming that the exciting cause of atavic mutation in those two cases is largely connected with climatic conditions, although the determinate cause of mutation, both phylogenetic and atavic, is apparently often independent of such conditions. It may be added that I have not yet been able to suggest an exciting cause for the cases of aggregate phylogenetic mutation which I have referred to; but the facts of that mutation are absolutely as I have stated them in the publications mentioned in the foregoing footnote.

CHARLES A. WHITE.

SMITHSONIAN INSTITUTION,

December 30, 1902.

CARNEGIE INSTITUTION OF WASHINGTON.

APPOINTMENT OF RESEARCH ASSISTANTS.

It is the purpose of the Carnegie Institution of Washington, among other plans, to encourage exceptional talent by appointing a certain number of research assistants.

These positions will not be those commonly known as fellowships or scholarships; nor is the object of this provision to contribute to the payment of mechanical helpers or of assistants in the work of the institution. It is rather to discover and develop, under competent scrutiny and under favorable conditions, such persons as have unusual ability. It is not intended to provide means by which a student may complete his courses of study, nor to give assistance in the preparation of dissertations for academic degrees. Work of a more advanced and special character is expected of all who receive appointment.

The annual emolument will vary according to circumstances. As a rule, it will not exceed \$1,000 per annum. No limitations are prescribed as to age, sex, nationality, graduation or residence. Appointments will at first be made for one year, but may be continued.

It is desirable that a person thus appointed

should work under the supervision of an investigator who is known to the authorities of the Carnegie Institution to be engaged in an important field of scientific research, and in a place where there is easy access to libraries and apparatus—but there may be exceptions to this.

Applications for appointments may be presented by the head of, or by a professor in, an institution of learning, or by the candidate. They should be accompanied by a statement of the qualifications of the candidate, of the research work he has done, and of that which he desires to follow, and of the time for which an allowance is desired. If he has already printed or written anything of interest, a copy of this should be enclosed with the application.

Communications upon this subject should be distinctly marked on the outside envelope, and on the inside, Research Assistant, and should be addressed to the Carnegie Institution of Washington, 1439 K Street, Washington, D. C.

MARINE BIOLOGICAL LABORATORY.

THE Carnegie Institution of Washington has made a grant to the Marine Biological Laboratory and now has at its disposal twenty tables in the Laboratory at Woods Hole, Mass., for the season of 1903. These tables are intended for the use of persons engaged in original research in biology, and carry with them the right to be furnished with the ordinary supplies and material of the Laboratory. Applications for the use of one of these tables should be addressed to the Secretary of the Carnegie Institution, Washington, D. C., stating the period for which the use of the table is desired, and the general character of the work which the applicant proposes to do.

SCIENTIFIC NOTES AND NEWS.

THE American Society of Naturalists at its Washington meeting during convocation week elected as president Professor William Trelease, of the Missouri Botanical Garden. Dr. Franz Boas, of New York, was elected vice-president and Professor Bashford Dean, treasurer. Dr. G. Ross Harrison was reelected secretary. Professor William T. Sedgwick,